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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES E. HOLL,
YAO-CHOU CHENG, and MARK W. DOBIN

Appeal 2014-008878
Application 12/920,275
Technology Center 2600

Before HUNG H. BUI, JON M. JURGOVAN, and
AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants[1] appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1–48. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

THE INVENTION

The application is directed to "[s]ystems and methods which utilize functional objects in connectivity analysis." (Abstract.) Claims 1 and 45, reproduced below, are illustrative:

1. A method comprising:

providing a subsurface geologic model of a geologic area of interest, said model including representations of objects within said geologic area of interest;

defining one or more functional objects within said model;

identifying a set of fluid reservoir connection pathways within said model associated with said one or more functional objects;

identifying one or more fluid reservoir connection pathways not associated with said one or more functional objects;

analyzing fluid connectivity within said geologic area of interest with respect to said one or more functional objects using said set of fluid reservoir connection pathways; and

presenting said set of fluid reservoir connection pathways to be readily identifiable visually in the visualization environment, relative to the one or more reservoir connection pathways not part of said set of said fluid reservoir connection pathways.

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[1] Appellants identify ExxonMobil Upstream Research Company as the real party in interest. (*See* App. Br. 4.)

45. A method comprising:

providing a first subsurface geologic model of a geologic area of interest, said first model including representations of structural objects within said geologic area of interest and having a first plurality of fluid reservoir connection pathways defined therein;

providing a second subsurface geologic model of said geologic area of interest, said second model including representations of at least a portion of said structural objects and having a second plurality of fluid reservoir connection pathways defined therein; and

correlating points within said first model with corresponding points in said second model using said structural objects and said fluid reservoir connection pathways to thereby provide correlated model of said geological area of interest.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Karr, Jr. et al.	US 2001/0022558 A1	Sept. 20, 2001
Frankel	US 2007/0027666 A1	Feb. 1, 2007
Bratton et al.	US 2007/0294034 A1	Dec. 20, 2007

THE REJECTIONS

1. Claims 1–16, 18–33, and 35–48 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Karr and Frankel. (*See* Final Act. 2–24.)

2. Claims 17 and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Karr, Frankel, and Bratton. (*See* Final Act. 25.)

ANALYSIS

Claims 1–17

Claim 1 concerns a method that includes (a) providing a subsurface geologic model; (b) defining "functional objects" within the model; (c) identifying a set of fluid reservoir connection pathways within the model that are associated with the functional objects; (d) identifying other fluid reservoir connection pathways not associated with the functional objects; (e) analyzing fluid connectivity within the geologic area of interest with respect to the functional objects using the identified set of fluid reservoir connection pathways; and (f) presenting the set of fluid reservoir connection pathways in the visualization environment relative to the other reservoir connection pathways.

Karr describes "[a] location system . . . for commercial wireless telecommunication infrastructures." (Karr, Abstract.) Karr's disclosure is lengthy but, in summary, the system (a) receives signal data measurements corresponding to wireless communications between a mobile station ("MS") to be located and a wireless telephony infrastructure; (b) organizes and processes the signal data measurements from the MS and surrounding base stations ("BS") to obtain composite wireless signal characteristic values; (c) provides the composite signal characteristic values to one or more MS location hypothesizing computational models to determine one or more initial estimates of the location of the target MS; (d) adjusts the location hypotheses output by the models to obtain a better target MS location estimate; and (e) computes a "most likely" target MS location estimate, preferably by taking into account a plurality of location hypotheses. (*See* Karr ¶¶ 93–100.)

Frankel "relates to numerical simulation of subsurface geological reservoirs" where "embodiments of the invention are related to computer modeling of the transmission of properties, for example the flow of fluids (e.g. hydrocarbon natural resources and water), within subsurface geological reservoirs." (Frankel, Abstract.)

The Examiner finds that Karr teaches the elements of claim 1, except that "Karr does not expressly disclose providing a subsurface geologic model, identifying fluid reservoir connection pathways, analyzing fluid connectivity[,] and presenting said set of fluid reservoir connection pathways to be readily identifiable visually in the visualization environment, relative to the one or more reservoir connection pathways not part of said set of said fluid reservoir connection pathways." (Final Act. 3–4.) The Examiner concludes, however, that "it would have been obvious to apply [Frankel's] method of providing a subsurface geologic model and presenting reservoir connection pathways to the Karr system for visualizing areas of interest, because this would convert a reservoir system of cells and connections into a graph-theory data structure (paragraph 60 of Frankel), to enable use of graph theory for determining a minimum cost path for conducting the most fluid flow." (*Id.* at 4.)

Appellants argue "Frankel fails to cure the deficiency with Karr" because it "does not appear to provide or suggest functional objects" or "identifying fluid reservoir connection pathways not associated with said one or more functional objects." (App. Br. 11–12.)

Appellants' argument regarding "functional objects" is unpersuasive because it amounts to a bare assertion that the element is not met in the combination. *See In re Lovin*, 652 F.3d 1349, 1356 (Fed. Cir. 2011).

Appellants fail to address the specific findings at page 2 of the Final Action regarding the use of "functional objects" in Karr. *See Ex parte Belinne*, No. 2009-004693, 2009 WL 2477843, at *4 (BPAI 2009) (informative) (affirming the rejection where "Appellants [did] not present any arguments to explain why the Examiner's explicit fact finding is in error").

However, we agree with Appellants with respect to "identifying fluid reservoir connection pathways not associated with said one or more functional objects." To satisfy this claim element, the Examiner cites paragraphs 114, 234, 847, and 859 of Karr. (*See* Final Act. 3.) Paragraph 114 explains that a stationary transceiver can be deactivated to conserve power. The cited portion of paragraph 234 explains that a trace function is generally available in different types of mobile switch centers even though their commands and data structures may differ. Paragraph 847 states that "[i]n determining an MBS location estimate, it may be desirable . . . to provide new location estimates based on paths associated with previous MBS location estimates." And paragraph 859 observes that each location track head is associated with a baseline entry. The Examiner does not explain, and we fail to discern, how this material might teach or suggest "identifying . . . pathways not associated with said one or more functional objects," as claimed. The Examiner states that "Karr alone is not cited to teach this limitation" (Ans. 4), but neither the Final Action, nor the Advisory Action, nor the Answer identify any parts of Frankel relative to this claim element, nor does the Examiner explain what, beyond the paragraphs of Karr described, teaches or suggests identifying pathways not associated with functional objects.

Because we conclude the record fails to support a finding that "identifying one or more fluid reservoir connection pathways not associated with said one or more functional objects" is taught or suggested in the combination, we reverse the Section 103 rejections of claims 1–17. We do not reach Appellants' other arguments concerning these claims.

Claims 18–34

Regarding claim 18, Appellants argue "the references do not appear to provide 'identifying a subset of fluid reservoir connection pathways of said plurality of fluid reservoir connection pathways associated with said one or more functional objects using said information regarding said at least one functional attribute.'" (App. Br. 18.) We are not persuaded of error, however, because, as the Examiner explains in connection with claim 1, Karr "discloses the hypothesis architecture . . . is useful in implementing solutions in a wide range of applications (paragraph 137), including seismic and/or geologic signal processing applications such as for locating oil and gas deposits (paragraph 141)," and "Karr would be modified to include features in the art of subsurface geologic modeling." (Ans. 3.) Appellants fail to address the Examiner's specific findings.

Appellants also argue "the references do not appear to provide . . . 'presenting said set of fluid reservoir connection pathways in a visualization environment so as to be readily identifiable visually.'" (App. Br. 18.) We are not persuaded of error, however, because Appellants do not address the Examiner's specific finding that this subject matter is taught or suggested in Figure 11 and paragraphs 638, 396, and 183 of Karr. (*See* Final Act. 11.)

Appellants further argue the combination is improper because "Karr is modeling wireless communications through free space, while Frankel is

modeling connectivity through a subsurface region" and "the record is unclear how the teachings of these references would be integrated to provide the claimed subject matter." (App. Br. 19.) Bodily incorporation is not required, however, and we find that the Examiner has adequately articulated how the claimed features are met in the combination and provided a rational underpinning consistent with the guidelines stated in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). (*See* Final Act. 10–11; Ans. 8.)

With respect to claim 34, Appellants additionally argue that "the references are directed to different modeling problems with Bratton and Frankel involving subsurface regions, while Karr involves wireless communications in free space" and "[t]he record is unclear how these references would be integrated to provide the claimed subject matter, as noted above." (App. Br. 21.) We disagree for the reasons stated in connection with the analogous arguments made against the rejection of claim 18.

We accordingly sustain the rejections of claims 18–34.

Claims 35–44

Claim 35 requires "fluid reservoir connection pathways" of a "plurality of connection pathways" that are associated with a functional object displayed in a manner "less readily identifiable visually as compared [other] fluid reservoir connection pathways." Appellants argue that "the references do not appear to provide 'a set of fluid connection pathways associated with said one or more functional objects, wherein fluid reservoir connection pathways of said plurality of connection pathways not part of said set of fluid reservoir connection pathways are displayed in said visualization environment in an manner that is less readily identifiable

visually as compared to said set of fluid reservoir connection pathways.'" (App. Br. 22.) We are not persuaded of error because Appellants' contentions are conclusory and again fail to address the Examiner's specific findings. (*See* Final Act. 17–19.)

Appellants also attack the combination. (*See* App. Br. 23.) We find this does not show error for the reasons identified above.

The rejections of claims 35–44 are sustained.

Claims 45–48

Claim 45 is directed to a method that includes "correlating points within [a] first model with corresponding points in [a] second model using . . . structural objects and . . . connection pathways to thereby provide a correlated model of [a] geological area of interest." We fail to see how the cited portions of Karr and Frankel teach or suggest this limitation. Karr's paragraph 181 simply explains that "various digital wireless communication standards have been introduced" and describes advantages of CDMA technology, while paragraph 360 explains that statistical models can be used to estimate handset locations. Frankel's paragraphs 45 and 46 generally describe how certain embodiments relate to reservoir simulation, apply graph theory, and allow for visualization. The Examiner does not adequately explain how any of this material teaches or suggests correlating points within first and second models using structural objects and connection pathways to provide a correlated model of a geological area of interest.

Because the Examiner has not identified adequate support for the "correlating . . ." limitation in this record, we decline to sustain the rejection of claim 45, or its dependent claims 46–48. We do not reach Appellants' other arguments relating to these claims.

DECISION

The obviousness rejections of claims 18–44 are sustained. The obviousness rejections of claims 1–17 and 45–48 are reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART